

**PIEZOELECTRIC ACTUATOR AND  
DISK DRIVE APPARATUS USING THE  
PIEZOELECTRIC ACTUATORR**

5    **Field of the invention**

          The present invention relates to an actuator element made of a piezoelectric material characterized by a high elasticity upon applied electricity, and in particular, to a piezoelectric actuator element for use in head positioning means in a disk drive and the disk drive using the  
10    actuator.

**Background Art**

          The technology of disk drives has recently seen rapid progress in linear track recording density due to improvements of head device elements. Along with this trend, an increased recording density in a direction normal to the tracks becomes important to meet the much finer track pitch that is required. Then, a mechanism which is capable of driving a magnetic head with a finer scale is needed to follow the narrow track width accuracy.  
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          The magnetic head for recording and playing data in a magnetic disk of the disk type data storage system is disposed in a head slider mounted on  
20    an actuator arm. A voice coil motor (or VCM) moves the actuator arm pivotally to position the magnetic head for a target location on a disk for reading data. Along with the progress in recording density, however, such a conventional way depending on VCM only has become insufficient to  
25    maintain enough accuracy in positioning the magnetic head. Consequently, an additional fine positioning means using a piezoelectric element has been proposed to be adopted as an auxiliary actuator to the conventional VCM

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